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# SC4 Architecture for Data Integration

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## Current SC4 Problems

- Incompatible set of standards
- AP-Interoperability
- Product Centricity
- Information Exchange vs Information Sharing
- File exchange vs data consolidation



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## Requirements

- Provide an integration platform for SC4 standards, and with non-SC4 standards
- Support Data Integration & Sharing
  - Encoding/decoding data elements
  - Consolidation of different data sets
  - Integration of different data models
  - Use of different data modelling languages

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## SC4 Data Architecture Summary (1)

- An additional (SC4) architecture for industrial data, not “the new STEP architecture”
  - need not impact any other SC4 standard
  - other standards may migrate towards the new architecture as they see fit
- Designed to enable the integration/translation of data from/between any STEP AP, P-LIB, MANDATE, Oil and Gas, any other model



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## SC4 Data Architecture Summary (2)

- Key aspects of the architecture will be
  - An Integration Model based on generic ideas
    - Extensibility required
    - Integration methodology required
  - Potential new implementation methods for data sharing and integration
  - Application View & Application Data Model
  - Projection Capability
  - Translation Capability between terminologies

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## What is an “Integration Model”?

- Integration model should provide a basis for:
  - modelling at different levels of abstraction
  - managing change to the model
  - modelling of constraints
  - use of multiple modelling languages
- Based on generic modelling concepts
  - “Ontological” approach
  - Exploiting practical research results from computer science, AI, and philosophy



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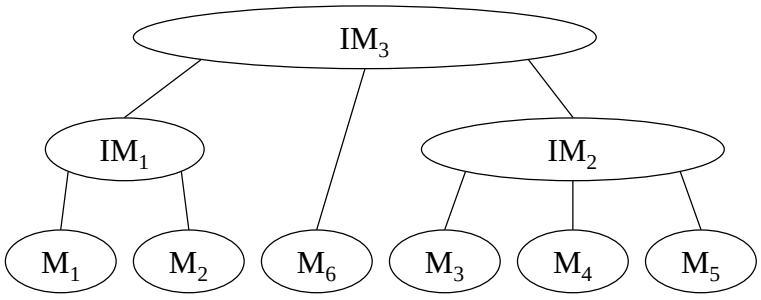
## Integration models



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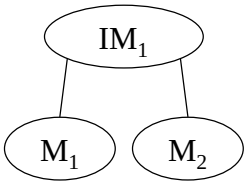
# Integration and external models

- "Mapping" process involves some or all of:
  - subsetting
  - extension
  - projection
  - transformation
  - translation
  - encoding



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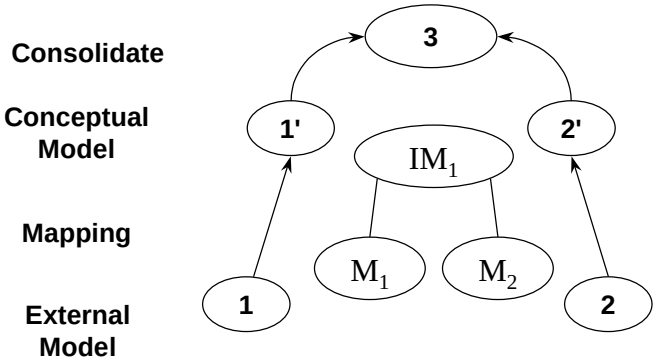
# Mapping to a Conceptual Model



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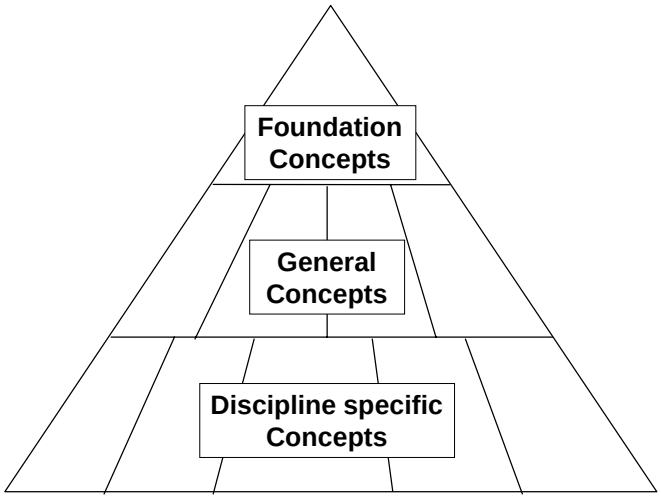
# Base Concepts



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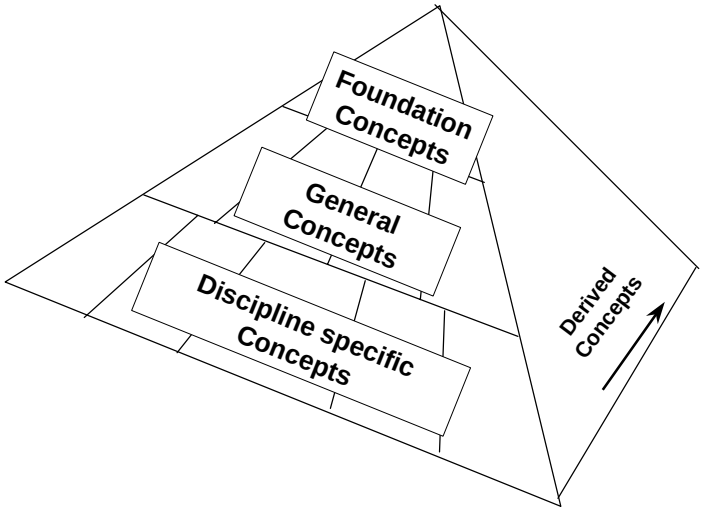
# Integration Model



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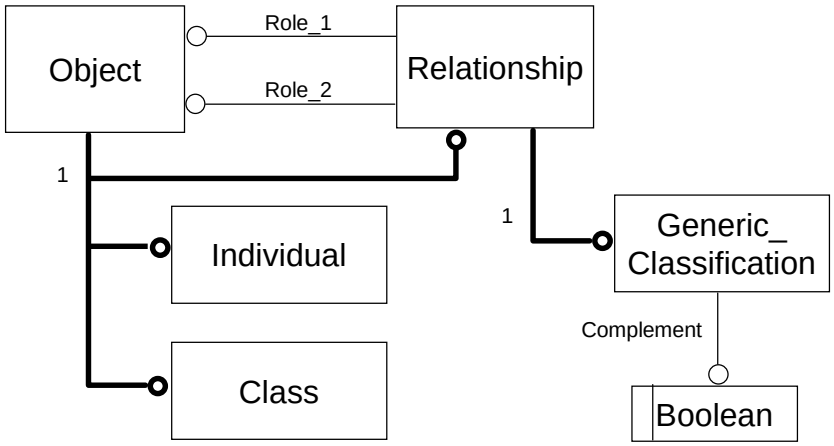
# Some Foundation Level Concepts



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# Application View

- Subset of Integration Model
- May have additional constraints
- May have projection to “flat” model(s)
- May be mapped to external model
  - usually simple mapping
  - e.g. STEP APs, PLib, MANDATE, UML models

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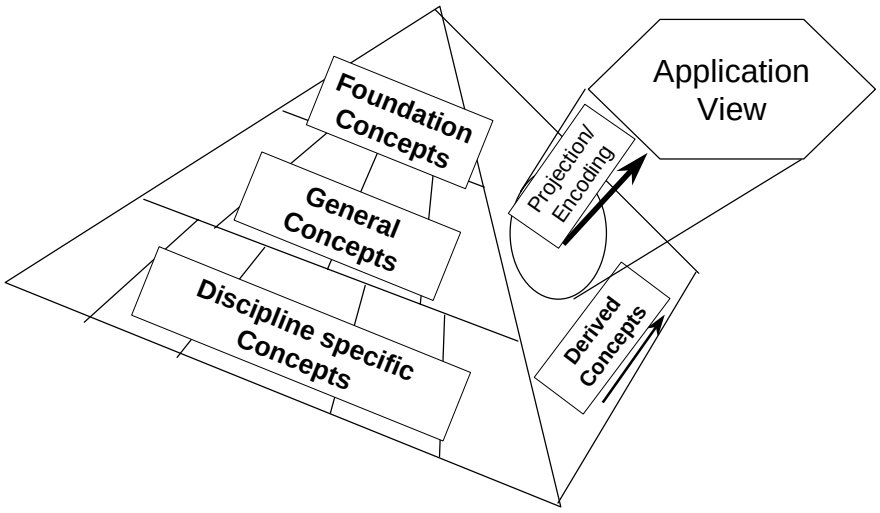
# Integration Architecture



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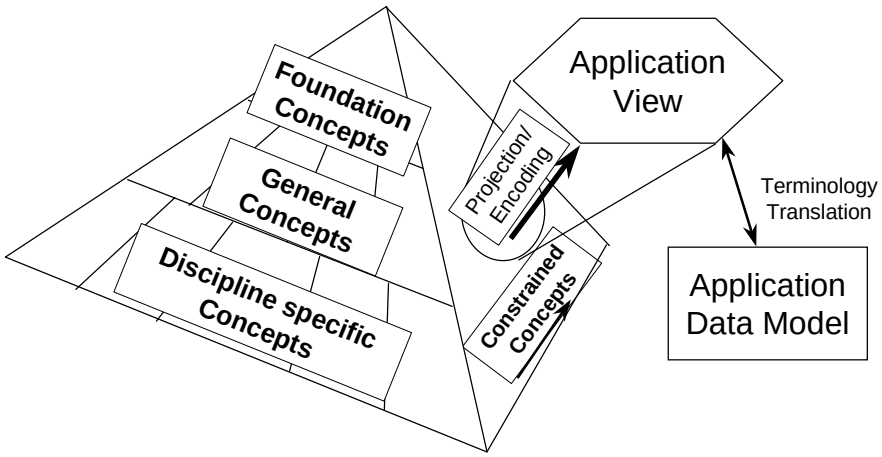
# Integration Architecture



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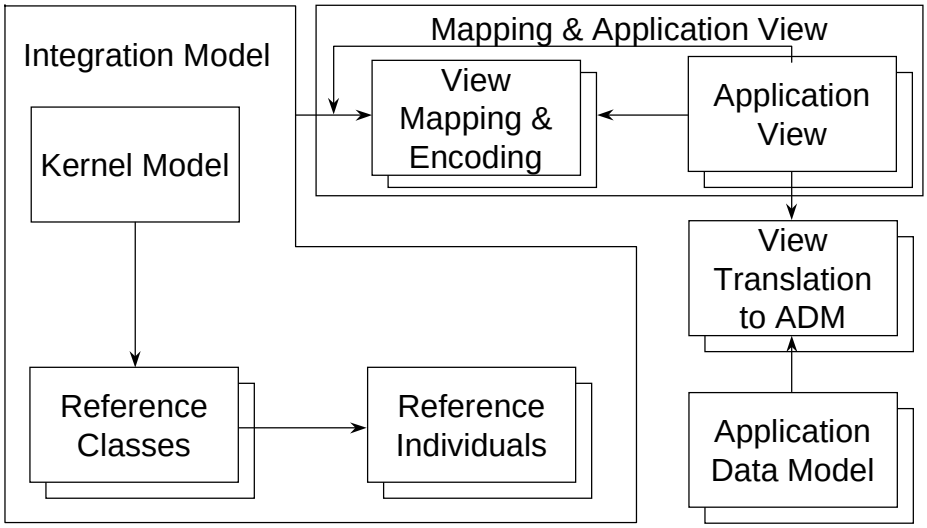
# Organisation of Integration Architecture



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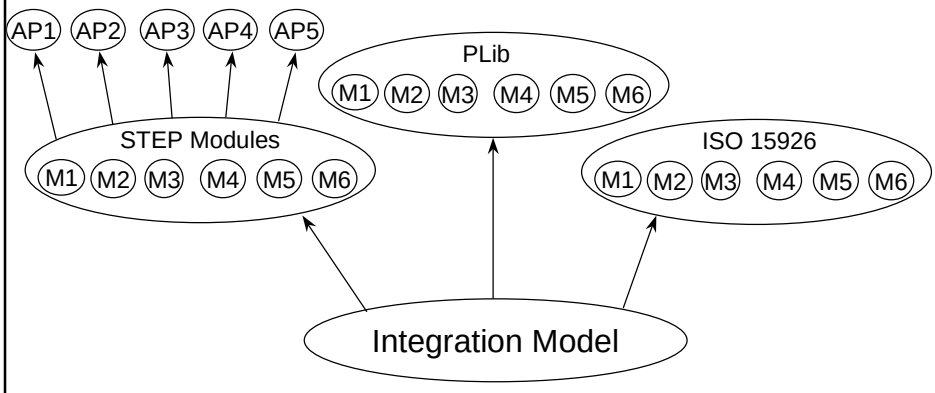
# View Structure



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## Time Scales (Provisional)

- New Work Item Targeted for Q1 2000
  - To include Working Draft of some parts
- Committee Draft 2001
- Draft International Standard 2003
- International Standard 2005
  - Initial parts only



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## Next Steps

- Identify requirements for EXPRESS and EXPRESS-X
- Develop Integration Model as a series of integrated layers
- Develop integration methodology
- Demonstration